LING Electronics

Model POA-1 POWER OSCILLATOR/ AMPLIFIER

Completely self-contained—The compact power oscillator/amplifier offers the user a complete signal source and oscillator for use with small shakers, such as the Goodmans V-47.

Wide frequency range is provided by four position coarse range switch and a fine frequency control. Frequency range is from 10 to 2,000 cps. A jack is provided to allow use of an external oscillator which will extend the frequency range from DC to 5,000 cps.

Compact all solid-state design provides maximum reliability in a minimum space. The unit is housed in a painted cast aluminum case.

Gain control and off-on switch are controlled by the same knob. Fault protection is provided by the fuse located on the rear panel.

SPECIFICATIONS

Output: 4 vrms at 1.25 amps.

Amplifier Frequency Range: DC to 5,000 cps

Oscillator Frequency Range: 10 to 2,000 cps

Power Requirements: 115 V ac, 60 cps at 15 watts

MP MASTER
MA34248

LING Electronics
A DIVISION OF LTV LING ALTEC, Inc.
1515 S. MANCHESTER AVE. • ANAHEIM, CALIF. • AC714 774-2000

MODEL

POA-1
POWER OSCILLATOR/AMPLIFIER

IN ALL CORRESPONDENCE WITH THE FACTORY BE SURE TO INCLUDE THE FOLLOWING INFORMATION:

EQUIPMENT MODEL NUMBER

SERIAL NO. _____

LING NO. _____

LING electronics

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SECTION 1 - DESCRIPTION

1-1. INTRODUCTION

The Ling Electronics Model POA-1 Power Oscillator/Amplifier is designed to drive the Goodmans Model V47/3 Vibration Generator. The unit consists of a variable frequency sine wave oscillator and a power amplifier which has output characteristics compatible with the Model V47/3. The Model POA-1 is housed in a cast aluminum alloy enclosure designed as a miniature of the much larger Ling Electronics high power amplifiers.

1-2. REFERENCE DATA

Output	3v rms into 3 ohms.
Amplifier Frequency Range	dc to 10,000 Hz.
Oscillator Frequency Range	10 to 2,000 Hz. *
Power Requirements	117v, 50/60 Hz, 15w.

* NOTE: The frequency response of the oscillator is shaped to reduce the drive to the Model V47 Vibration Generator at the lower frequencies where excessive displacement would damage the vibration generator.

SECTION 2 - INSTALLATION AND OPERATION

2-1. INTRODUCTION

Upon receiving the unit, inspect carefully for shipping damage. If the unit is damaged, a claim should be filed with the carrier and a full report of damage submitted to the manufacturer by the claim agent.

2-2. INSTALLATION

a. Make connections from the two output binding post terminals of the Model POA-1 to the two binding post terminals of the Model V47 using a convenient length of type POT 18 gage wire (common lamp cord). Strip and twist the strands together tightly to prevent loose strands from touching the amplifier chassis or the top cover of the Model V47. Polarity is unimportant; that is, the black terminal of the Model POA-1 can be connected to either the black or red terminal of the vibration generator.

NOTE

When the Model POA-1 is supplied as part of the Ling S-2 system (POA-1 plus V47/3 combination) or the EVK-100 Educational Vibration Kit, an interconnecting cable is provided.

b. Make certain the amplifier is turned off (ON/ OFF GAIN control fully counterclockwise). Connect the power cord of the amplifier to a 110 to 125-volt, 50/60 hertz source.

c. If the unit fails to operate in the manner outlined under the operating instructions, notify the manufacturer giving full details of the trouble. Include Model and Serial Number in all correspondence. The manufacturer reserves the right to replace or repair as deemed necessary after service department inspection.

TABLE 2-1. MODEL POA-1 CONTROLS AND INDICATORS

PANEL MARKING	REFERENCE DESIGNATION	DESCRIPTION AND FUNCTION
COARSE FREQUENCY	S1	Three-deck, four-position rotary selects the approximate frequency of the output drive signal.
FINE FREQ ADJUST	R2	Three-section potentiometer that is adjusted for the exact frequency desired for the output drive signal.
ON/OFF GAIN	S2-R26	On-off power switch and output signal gain control.

2-3. OPERATION

a. Turn the COARSE FREQUENCY control to the desired range. One of the two highest frequency ranges should be selected when the unit is first turned on by an inexperienced operator. Increase the ON/OFF GAIN control gradually.

CAUTION

THE MODEL V47 IS RATED AT 0.1 INCH PEAK-TO-PEAK STROKE. IT IS POSSIBLE TO DRIVE THE ARMATURE BEYOND THE RATED STROKE LIMITS AT LOW FREQUENCY. IF THE RATED STROKE IS EXCEEDED, DAMAGE TO THE SUSPENSION SYSTEM OR MOVING COIL IS LIKELY TO RESULT.

b. The FINE FREQ ADJUST control may be rotated while the Model V47 is vibrating, to obtain the desired operating frequency. If the frequency range is to be changed, set the ON/OFF OUTPUT control fully counterclockwise before switching the COARSE FREQUENCY control.

CAUTION

IF THE COARSE FREQUENCY CONTROL IS SWITCHED WITH THE GAIN AT OTHER THAN MINIMUM, OUTPUT TRANSIENTS MAY BE GENERATED WHICH COULD DAMAGE THE MODEL V47 OR THE TEST ARTICLE.

c. The Model V47 ratings are listed in the instruction manual, and should be considered the maxima for operation at full performance. It is possible, with the Model POA-1, to drive the Model V47 beyond its rated performance limits, and if operation at or near rated performance is contemplated, steps should be taken to monitor displacement and the current through the moving coil. An alternating current ammeter, preferably of the RF or Thermocouple type, should be inserted in series with one of the interconnecting leads, and the current monitored to assure that it does not exceed the rated maximum.

2-4. OPERATION WITH EXTERNAL SIGNAL SOURCE

A jack is provided at the rear of the Model POA-1 to allow operation with an external signal such as a calibrated oscillator or function generator. The output of the signal source should be connected to a two-circuit, one-fourth inch diameter phone plug (reference connected to plug sleeve, high side to plug tip). When the plug is inserted into the jack, the Model POA-1 Power Amplifier is disconnected from the internal sine wave oscillator and connected to the external signal source.

2-5. ENGINEERING DRAWINGS

44658	Schematic, POA-1
44660	PC Card Assembly

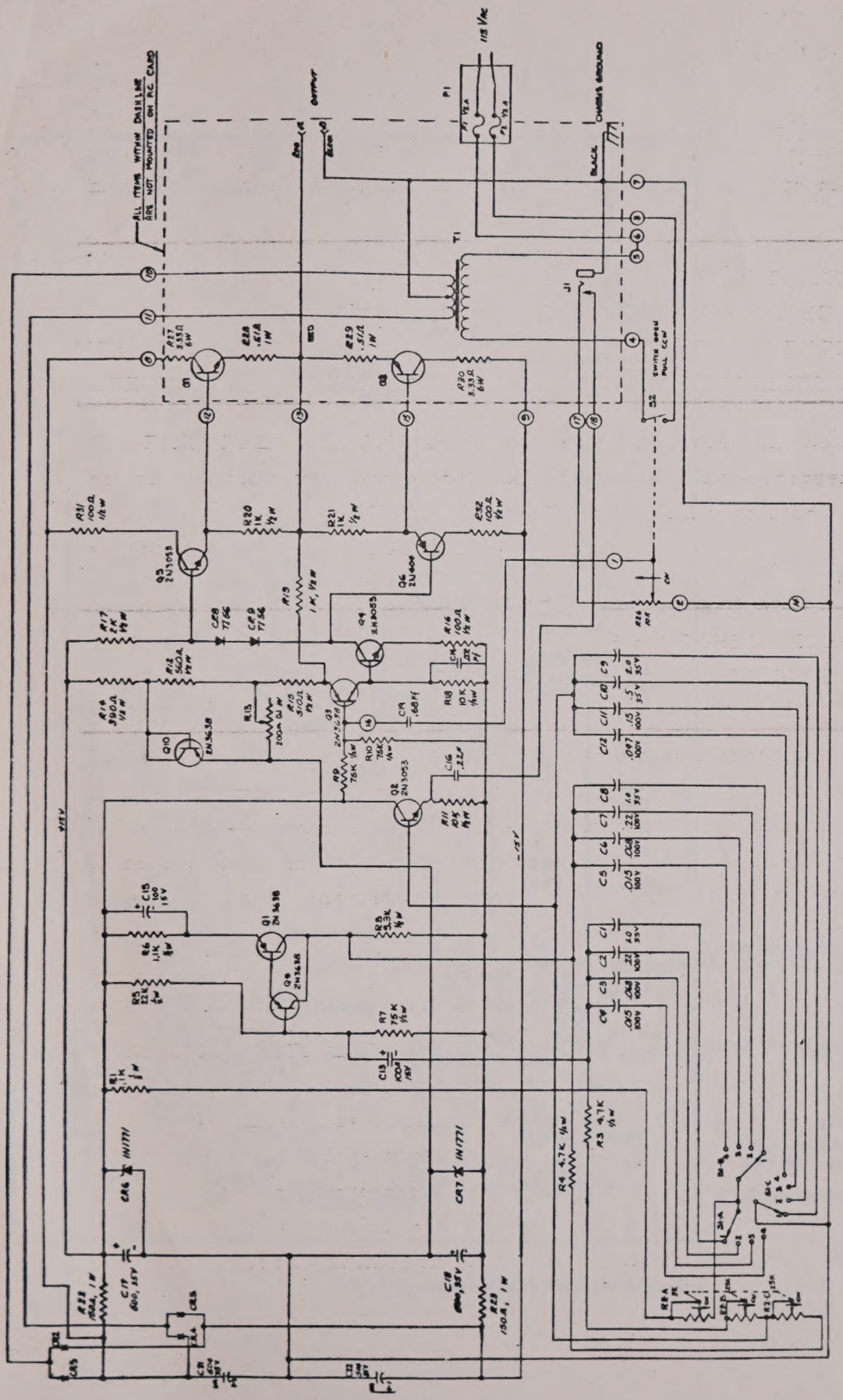

Fig. 2-1. Model POA-1 Schematic Diagram

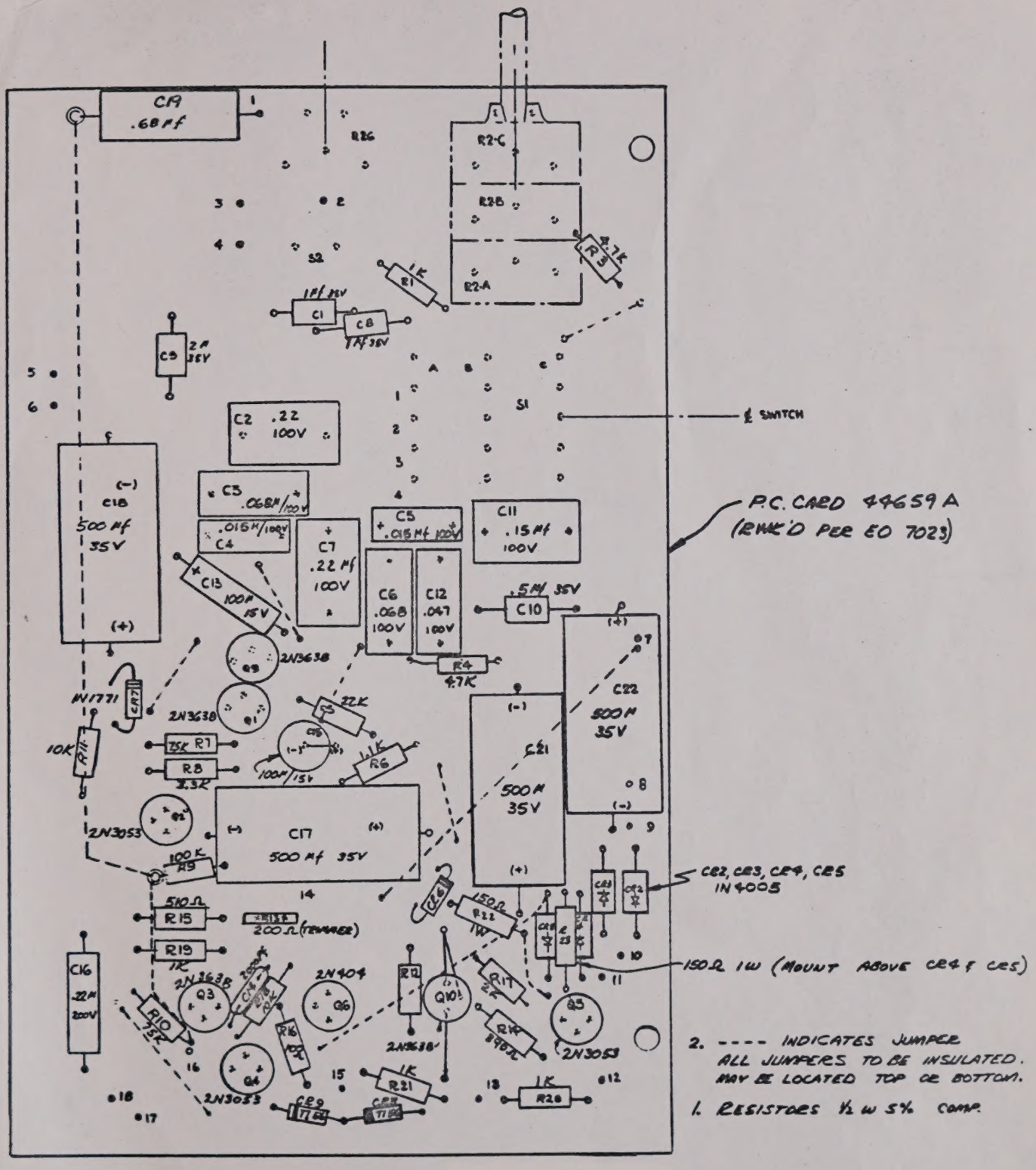

Fig. 2-2. Model POA-1 PC Card Assembly

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